

EOS Production Sites Network Performance Report

This is a monthly summary of EOS network performance testing between production sites for August 2005 -- comparing the measured performance against the requirements.

Highlights:

- As EMSnet is being deconstructed, this report has been renamed to reflect all EOS production sites, regardless of network connectivity
 - SIPS sites are now included
 - Initially, NCAR, RSS, NSSTC, and KNMI have been added.
 - More SIPS sites may be added later.
- The requirements have been updated this month, approximately as follows:
 - Using Ran Rathore's Handbook update version 1.4
 - Including the new ERSDAC network requirements
 - As applied to Trish Perrotto's Requirements spreadsheet (12/03)
 - As interpreted by me
 - I also removed the LaRC to GSFC backhaul requirements
 - This is no longer planned
- Very stable performance – The only ratings change was due to a change in the requirements, not network performance
- Outstanding Issue:
 - ASF to NSIDC flow
- Significant changes in testing are indicated in Blue, Problems in Red

Ratings:

Rating Categories:

Rating	Value	Criteria
Excellent:	4	Total Kbps > Requirement * 3
Good:	3	1.3 * Requirement <= Total Kbps < Requirement * 3
Adequate:	2	:Requirement < Total Kbps < Requirement * 1.3
Almost Adequate:	1.5	Requirement / 1.3 < Total Kbps < Requirement
Low:	1	Requirement / 3 < Total Kbps < Requirement / 1.3
Bad:	0	Total Kbps < Requirement / 3

Where Total Kbps = Integrated Kbps (where available)

Else = User Flow + iperf monthly average

Ratings Changes:

Upgrades: ↑

LaRC → GSFC: Good → **Excellent**

(due to the removal of the backhaul requirements)

Downgrades: ↓

JAXA → GSFC: Good → **Adequate**

(due to an increase in the requirements)

Additions: (Values for last month were also incorporated in the graph)

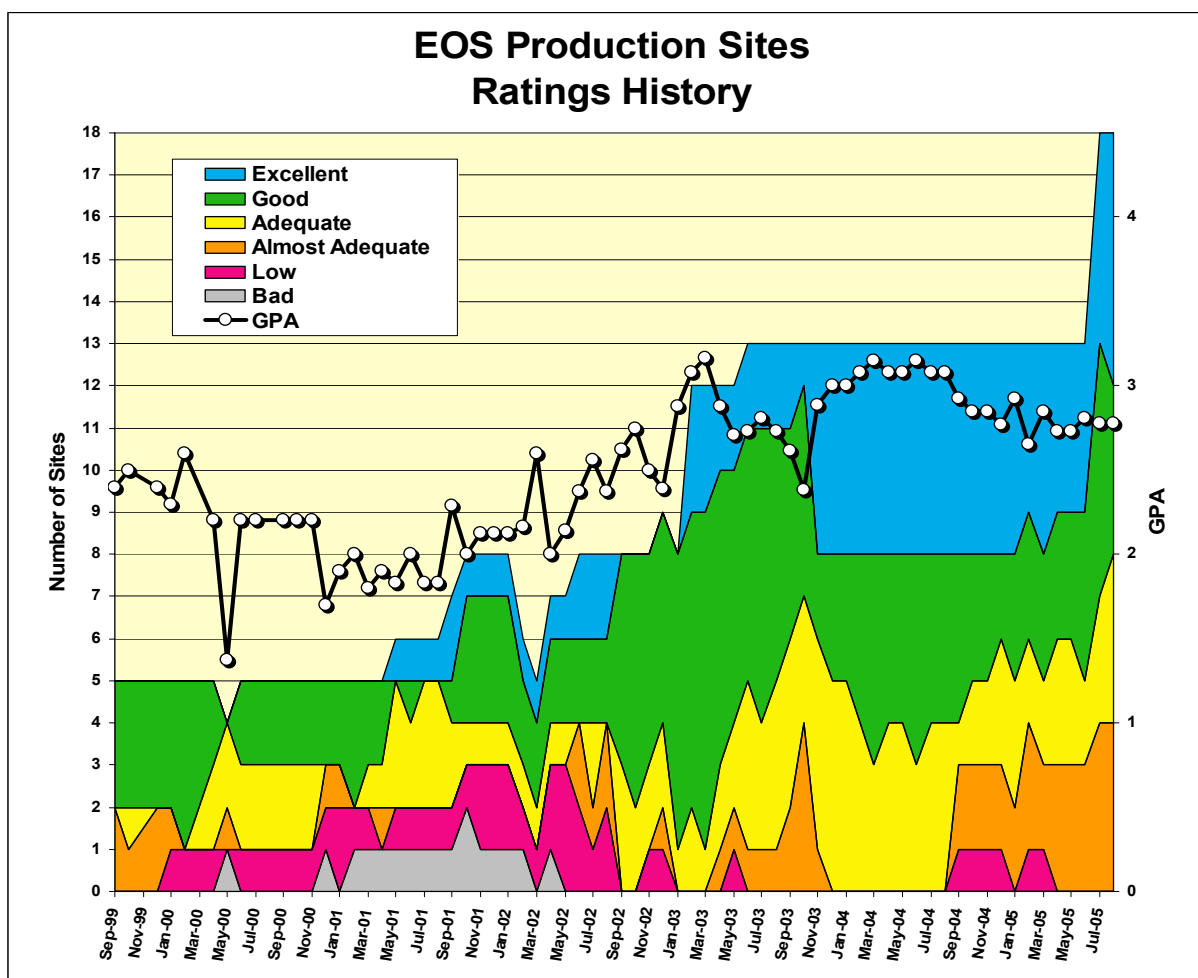
NCAR: **Good**

RSS: **Adequate**

KNMI: **Excellent**

NSSTC to NSIDC: **Good**

GSFC to JPL (via PIP): **Almost Adequate**



The chart above shows the number of sites in each classification since EMSnet testing started in September 1999. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements.

Network Requirements vs. Measured Performance

August 2005		Requirements (kbps)		Testing							
Source → Destination	Team (s)	Current	Future	Source → Dest Nodes	Avg User Flow kbps	iperf Avg kbps	Total Avg kbps	Integrated kbps	Rating re Current Requirements		Rating re
		Aug-05	Oct-06						Aug-05	Prev	Oct-06
GSFC → ASF	QuikScat, Radarsat	n/a	n/a	GSFC-CSAFS → ASF	0	1307	1307	1307	n/a	n/a	n/a
ASF → JPL	QuikScat, Radarsat	n/a	n/a	ASF → JPL-SEAPAC	50	1314	1364		n/a	n/a	n/a
GSFC → NOAA	QuikScat	189	0	GSFC-CSAFS → NESDIS	n/a				n/a	n/a	n/a
GSFC → EDC	MODIS, LandSat	285361	285361	GSFC-PTH → EDC PTH	61061	225876	286936	236667	AA	AA	AA
GSFC → JPL (EMSnet)	ASTER, QuikScat, MLS, etc.	1272	762	GSFC-CSAFS → JPL-SEAPAC	1774	6885	8659	7124	Excellent	E	Excellent
GSFC → JPL (PIP)	AIRS, ISTs	15757	15757	GDAAC → JPL-AIRS	n/a	13514	13514		AA	AA	AA
JPL → GSFC	AMSR-E, MISR, etc.	1155	1695	JPL-PODAAC → GDAAC	715	12203	12918		Excellent	E	Excellent
JPL → RSS	AMSR-E	2488	2488	JPL-PODAAC → RSS	n/a	2798	2798		Adequate	A	Adequate
LaRC → JPL	TES, MISR	39553	39553	LDAAC → JPL-TES	282	39456	39738	39456	AA	AA	AA
JPL → LaRC	TES	35073	52626	(next month)	n/a						
GSFC → LaRC	CERES, MISR, MOPITT	58456	58594	GDAAC → LDAAC	4518	65191	69709	65504	Adequate	A	Adequate
LaRC → GSFC	MODIS, TES	3159	3160	LDAAC → GDAAC	3	50327	50330	50327	Excellent	G	Excellent
JPL → NSIDC	AMSR-E	1342	1342	JPL-PODAAC → NSIDC SIDADS	n/a	3249	3249		GOOD	G	GOOD
NSIDC → GSFC	MODIS, ICESAT, QuikScat	13326	13317	NSIDC DAAC → GDAAC	n/a	16967	16967		Adequate	A	Adequate
GSFC → NSIDC	MODIS, ICESAT, QuikScat	64118	90813	GSFC-PTH → NSIDC-PTH	4542	91204	95746	91220	GOOD	G	Adequate
NSSTC → NSIDC	MODIS, ICESAT, QuikScat	7497	7497	NSSTC → NSIDC DAAC	n/a	12801	12801		GOOD	G	GOOD
LaRC → NCAR	HIRDLS	5395	5395	LDAAC → NCAR	n/a	16016	16016		GOOD	G	GOOD
US → JAXA	QuikScat, TRMM, AMSR	1665	1431	GSFC-CSAFS → JAXA	48	1287	1335	1379	AA	AA	AA
JAXA → US	AMSR-E	1282	1282	JAXA → GDAAC	0	1436	1436		Adequate	G	Adequate
GSFC → ERSDAC	ASTER	12450	12450	ENPL-PTH → ERSDAC	n/a	88367	88367		Excellent	E	Excellent
ERSDAC → EDC	ASTER	26832	26832	ERSDAC → EDC PTH	n/a	86321	86321		Excellent	E	Excellent
GSFC → KNMI	OMI	3282	3282	GSFC-MAX → OMI-PDR		23662	23662		Excellent	E	Excellent
Notes: Flow Requirements (from BAH) include TRMM, Terra , Aqua, Aura, ICESAT, QuikScat					Ratings Summary						
									Aug-05	Req	Oct-06
									Score	Prev	Score
*Criteria:	Excellent	Total Kbps > Requirement * 3			Excellent				6	5	6
	GOOD	1.3 * Requirement <= Total Kbps < Requirement * 3			GOOD				4	6	3
	Adequate	Requirement < Total Kbps < Requirement * 1.3			Adequate				4	3	5
	Almost Adequate	Requirement / 1.3 < Total Kbps < Requirement			Almost Adequate				4	4	4
	LOW	Requirement / 3 < Total Kbps < Requirement / 1.3			LOW				0	0	0
	BAD	Total Kbps < Requirement / 3			BAD				0	0	0
					Total				18	18	18
Note: Requirements with yellow background have been revised this month											
					GPA				2.78	2.78	2.72

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1) ASFRating: **N/A**Web Page: http://ensight.eos.nasa.gov/Networks/emsnet/ASF_EMS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-CSAFS → ASF	1.39	1.31	0.90	0.01	1.32	1.31
ASF → NESDIS	n/a	n/a	n/a			
ASF → NSIDC	0.18	0.17	0.11			
ASF → GSFC-CSAFS	1.40	1.39	0.63			
ASF → JPL-SEAPAC	1.37	1.31	1.02			

Comments: Thruput were stable this month to and from all destinations – except that testing to NOAA stopped since the NOAA host was down. The approx 1.4 mbps outbound total is as expected for a single T1 (1.54 mbps) circuit, as is the 1.3 mbps inbound. **The performance to NSIDC is still low since the NSIDC switch from EMSnet to PIP in February** (previously performance was over 1 mbps -- similar to the other destinations).

Since the requirement from ADEOS has been deleted, the remaining ASF requirements are very low, and are mostly based on estimated ECS interDAAC queries, not production flows. These flow estimates are not considered reliable enough to use as a basis for testing, so the rating is "N/A".

2) EDC:Rating: Continued **Almost Adequate**Web Page: <http://ensight.eos.nasa.gov/Networks/emsnet/EDC.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-PTH → EDC PTH	242.2	225.9	197.6	61.1	286.9	236.7
GSFC-DAAC → EDC LPDAAC	225.8	197.7	109.0			
ERSDAC → EDC	87.6	86.3	22.9	(via APAN / Abilene / vBNS+)		
EDC DAAC → GSFC DAAC	125.5	114.6	89.1			
EDC PTH → GSFC PTH	355.1	324.4	246.5			

Requirements:

Source → Dest	Date	mbps	Rating
GSFC → EDC	FY '05	285.4	Almost Adequate
ERSDAC → EDC	FY '05	26.8	Excellent

Comments:

The rating is based on testing between from GSFC PTH to EDC PTH. The PTH hosts are outside the EDC firewalls, and therefore have higher thuput.

The rating is based on the "Integrated" measurement, and as usual is lower than the sum of the MRTG and iperf. The user flow this month had only a small contribution to the integrated measurement. This 237 mbps value remains below the requirement, but by less than 30%, so the rating continues to be "Almost Adequate".

The results from ERSDAC to EDC-PTH (in support of the ERSDAC to EDC ASTER flow, replacing tapes) improved to their present values in April (median was 5.6 mbps in March), after an optical jumper was replaced in the Abilene to NGIX-E connection. The 26.8 mbps requirement is now derived from version 1.4 of the EOS Networks Handbook. This median thuput is more than 3 times this value, resulting in an "Excellent" rating.

3) JPL:

3.1) JPL ↔ GSFC

Ratings: JPL → GSFC: Continued **Excellent**

GSFC → JPL: PIP: **Almost Adequate**

EMSnet: Continued **Excellent**

Web Pages:

http://ensight.eos.nasa.gov/Networks/emsnet/JPL_SEAPAC.shtml

http://ensight.eos.nasa.gov/Networks/emsnet/JPL_PODAAC.shtml

http://ensight.eos.nasa.gov/Missions/aqua/JPL_AIRS.shtml

Test Results:

Source → Dest	NET	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
		Best	Median	Worst			
GSFC-CSAFS → JPL-SEAPAC	EMS	7.7	6.9	1.0	1.8	8.7	7.1
GSFC-MODIS → JPL-PODAAC	EMS	4.5	3.2	1.0	1.8	5.0	3.9
JPL-PODAAC → GSFC DAAC	EMS	12.3	12.2	3.5	0.7	12.9	
GSFC-DAAC → JPL-AIRS	PIP	21.9	13.5	1.6			
GSFC-PTH → JPL-AIRS	PIP	20.0	11.0	1.4			
GSFC-CNE → JPL-AIRS	SIP	19.9	19.5	14.8			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → JPL via EMSnet	Aug '05	1.27	Excellent
GSFC → JPL via PIP	Aug '05	15.76	Almost Adequate
JPL → GSFC combined	Aug '05	1.16	Excellent

Comments:

GSFC → JPL: The GSFC to JPL flows are still divided between EMSnet (to PODAAC, SEAPAC, JAXA, and ASF destinations) and PIP (AIRS) – the requirements are therefore correspondingly divided.

EMSNET: The 1.27 mbps requirement is newly derived from version 1.4 of the EOS Networks Handbook, and applies to the EMSnet flows only. The performance on this circuit improved from 6 mbps peaks to 8 mbps in late March with a NISN PVC change – it remains well above the requirement; the rating remains "Excellent". The CSFAS to SEAPAC "integrated" data is (like most other sites) just a bit higher than the iperf results alone, and lower than the sum of the median iperf and average MRTG. This again indicates that adding a small average user flow to the median iperf overstates the true situation.

PIP: The PIP flows include QA data from GDAAC to JPL-AIRS, ISTs for several missions (but the JAXA AMSR-E ISTs flow to JPL via EMSnet), and science user flow estimates, totaling 15.76 mbps. (It had been 18.9 mbps, before changes in AIRS QA flows, and removal of JAXA and HSB ISTs). The thruput via PIP appears bimodal, usually either about 1.5 mbps or 20 mbps – quite similar from the GDAAC and GSFC-PTH nodes. It is much more stable via SIP (usually 18-20 mbps). The median from GDAAC is a bit below the requirement, resulting in an "Almost Adequate" rating. From CNE, the median thruput is above the requirement, and would be rated "Adequate".

JPL → GSFC: The requirement from JPL to GSFC includes flows from JAXA and ASF which go via JPL, and includes GSFC and NOAA destinations. Since many of these flows were related to ADEOS, this requirement dropped substantially with the removal of ADEOS. The requirement was revised this month; the new requirement was taken from version 1.4 of the EOS Networks Handbook, and is now 1.16 mbps (was 0.63 mbps). Since the combined 12.9 mbps thruput is more than 3 times that, the rating remains "Excellent".

3.2) JPL ↔ LaRCRatings: LaRC → JPL: Continued **Almost Adequate**

Web Pages:

http://ensight.eos.nasa.gov/Networks/emsnet/JPL_TES.shtmlhttp://ensight.eos.nasa.gov/Missions/terra/JPL_MISR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
LaRC DAAC → JPL-TES	40.5	39.5	22.2	0.3	39.8	39.5
LaRC DAAC → JPL-MISR	40.9	39.9	22.4			
LaRC PTH → JPL-PTH	N/A	N/A	N/A			

Requirements:

Source → Dest	Date	Mbps	Rating
LaRC DAAC → JPL-TES	Aug '05	30.6	Adequate
LaRC DAAC → JPL-MISR	Aug '05	18.5	Good
LaRC DAAC → JPL-Combined	Aug '05	40.3	Almost Adequate
JPL → LaRC	Aug '05	35.1	n/a

Comments:

LDAAC → JPL: Performance has been stable since this flow was switched to NISN PIP on 10 Feb; MRTG data became unavailable at that time -- the passive "flows" data is now being used instead. The LaRC-PTH to JPL-PTH testing also was disabled by this transition, since the LaRC-PTH node switched to PIP, while JPL-PTH remained on EMSnet, and thus did not have connectivity.

JPL → LDAAC: This requirement was identified in version 1.4 of the EOS Networks Handbook, and is for TES products produced at the TES SIPS at JPL, being returned to LaRC for archiving. Testing of this capability will begin soon.

3.3) ERSDAC → JPL ASTER IST

Rating: n/a

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER-IST	87.9	75.9	19.2

Comments:

ERSDAC → JPL-ASTER-IST: This test was initiated in March, via APAN replacing the EBnet circuit. The typical 76 mbps must be well in excess of the requirements (IST requirements are generally 311 kbps).

4) NSIDC:

Ratings: GSFC → NSIDC: Continued **Good**
 NSIDC → GSFC: Continued **Adequate**

Web Pages: http://ensight.eos.nasa.gov/Networks/emsnet/NSIDC_EMS.shtml
http://ensight.eos.nasa.gov/Missions/aqua/NSIDC_u.shtml

GSFC ↔ NSIDC Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-DAAC → NSIDC-DAAC	91.1	90.4	49.2	4.3	94.7	90.5
GSFC-PTH → NSIDC-DAAC	91.4	91.2	62.3			
NSIDC DAAC → GSFC-DAAC	17.0	17.0	13.0			

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → NSIDC	Aug '05	64.1	Good
NSIDC → GSFC	Dec '04	13.3	Adequate

Comments:

GSFC → NSIDC: This flow was switched from EMSnet to NISN PIP on 8 February -- as a result of this switch, the MRTG data became unavailable -- the passive "flows" data is now being used instead. The rating is based on testing from GDAAC to the NSIDC DAAC. The iperf and integrated thrupt values were stable this month. The requirement, however, varies from month to month, based on planned ICESAT reprocessing. This month the reprocessing **IS NOT** included. Thus the thrupt remains 30% above the requirement, and the rating remains "Good"

NSIDC → GSFC: Performance from NSIDC to GSFC was stable this month, and the median remains slightly below 30% above the requirement, so the rating remains "Adequate".

Other Testing:

Source → Dest	Medians of daily tests (mbps)			Requirement	Rating
	Best	Median	Worst		
JPL → NSIDC-SIDADS	3.8	3.2	2.0	1.34	Good
GSFC-ISIPS → NSIDC (iperf)	90.4	90.0	45.0		
GSFC-ISIPS → NSIDC (ftp)	24.0	23.9	19.3		
NSIDC → GSFC-ISIPS (iperf)	16.1	15.7	15.1		
NSSTC → NSIDC DAAC	12.9	12.8	0.5	7.5	Good
ASF → NSIDC	0.18	0.17	0.11	0.73	Bad

Comments:

JPL → NSIDC-SIDADS: This flow switched from EMSnet to PIP on Feb 8, and thrupt dropped from 6.1 mbps previously. Thrupt remains below 3 x the requirement, so the rating remains "Good".

GSFC-ISIPS ↔ NSIDC: Performance from ISIPS to NSIDC was fixed on 8 February, after having problems since July '04. Performance is at nominal levels for the circuit capacity. Testing from NSIDC to ISIPS is stable and gets thrupt similar to NSIDC to GDAAC.

NSSTC → NSIDC: NSSTC (Huntsville, AL) sends AMSR-E data to NSIDC. Thrupt is above 30 % more than the requirement, so is rated "Good"

ASF → NSIDC: The median thrupt dropped with the NSIDC switch to PIP in February (was 1.4 mbps prior to that). It remains at less than 30% of the requirement, so the rating remains "Bad".

5) GSFC ↔ LaRC:

Ratings: LDAAC → GDAAC: ↑ Good → **Excellent**
 GSFC → LARC: Continued **Adequate**

Web Page: <http://ensight.eos.nasa.gov/Networks/emsnet/LARC.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GDAAC → LDAAC	77.6	65.2	23.2	4.5	69.7	65.5
GSFC-NISN → LaTIS	78.9	63.1	10.7			
GSFC-PTH → LaRC-PTH	78.4	67.3	17.8			
LDAAC → GDAAC	51.1	50.3	28.6	0.003	50.3	50.3

Requirements:

Source → Dest	Date	Mbps	Rating
GSFC → LARC (Combined)	FY '05	58.5	Adequate
GDAAC → LaRC ECS	FY '05	17.8	Excellent
GSFC → LATIS	FY '05	40.7	Good
LDAAC → GDAAC	FY '05	3.2	Excellent

Comments:

GSFC → LaRC: The GSFC→ LaRC ECS DAAC flow was switched from EMSnet to NISN PIP on 8 February (GSFC → LaTIS had been flowing on PIP since November). The combined 58.5 mbps requirement had been split as indicated above when the flows were on separate circuits, but is now treated as a single requirement as they are now both on PIP. So the rating is now based on the GDAAC to LaRC ECS DAAC thruput, compared to the combined requirement. MRTG and LaTIS user flow data are also no longer available (but the ECS user flow data was restored in March, and is used for the “User Flow” above).

So the GSFC→ LaRC ECS DAAC thruput is now above the combined requirement, but by less than 30%, so the combined rating remains “Adequate”.

LaRC → GSFC: Performance remained stable with the switch to PIP. The requirement jumped from 6.8 mbps to 31.7 mbps in Oct '03, to incorporate the backhaul of all LaRC science outflow via GSFC. However, most of the LaRC outflow was switched to MAX via SIP in April, improving the performance, so the backhaul portion of the requirement has now been removed (The requirement was 32 mbps including backhaul).

The thruput is now more than 3 x this requirement, so the rating improves to “Excellent”.

6) NOAA NESDIS:

Rating: n/a

Web Page: http://ensight.eos.nasa.gov/Networks/emsnet/NOAA_NESDIS.shtml

The NOAA Test host was removed on 23 June; a replacement is being sought. Note: It is planned to move all flows to use the MAX connection, and remove the 3 mbps private circuit.

Requirements:

Source → Dest	FY	Mbps	Rating
GSFC-CSAFS → NESDIS	'05	0.19	n/a

Comments: The dominant flow to NOAA is Quikscat data, from GSFC CSAFS.

7) US ↔ JAXA:

Ratings: JAXA → US: ↓ Good → **Adequate**
 US → JAXA: Continued **Almost Adequate**

Web Pages http://ensight.eos.nasa.gov/Networks/emsnet/JAXA_EOC.shtml
http://ensight.eos.nasa.gov/Networks/emsnet/JPL_SEAPAC.shtml
http://ensight.eos.nasa.gov/Networks/emsnet/GSFC_SAFS.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			User Flow	TOTAL	Integrated
	Best	Median	Worst			
GSFC-CSAFS → JAXA-EOC	1.53	1.29	0.83	0.05	1.34	1.38
JAXA-EOC → JPL-SEAPAC	n/a	n/a	n/a			
JAXA-EOC → GSFC-DAAC	1.46	1.44	0.58			

Requirements

Source → Dest	Date	mbps	Rating
GSFC → JAXA	FY '05	1.67	Almost Adequate
JAXA → US	FY '04, '05	1.28	Adequate

Comments:

US → JAXA: The requirements above were reduced in November '03, due to the removal of ADEOS flows. They have again been reduced in January '05 (were 2 mbps previously).

Performance has been stable since it recovered in January, below this requirement, but by less than 30%, so the rating remains "Almost Adequate".

Note: The requirement still includes 4 ISTs at JAXA for AMSR-E. Each IST has a requirement for 311 kbps, for a total of 1244 kbps. It could be questioned whether JAXA intends to operate all four of the ISTs simultaneously, or whether some ISTs are backups, in which case the network requirements would be reduced to a lower value.

JAXA → US: Performance remained consistent with the reduced ATM PVC. The requirement was reduced in November '03 due to the removal of ADEOS requirements, and **increased again in Version 1.4 of the EOS Networks Handbook**.

However, again this month testing from JAXA to JPL has still been down (restored in September). Thus the rating reverted to the JAXA to GSFC performance, which although stable, is now rated "Adequate" with regard to the new increased requirement.

8) ERSDAC ↔ US:Rating: Continued **Excellent**Web Page : <http://ensight.eos.nasa.gov/Networks/emsnet/ERSDAC.shtml>

Test Results:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
GDAAC → ERSDAC	21.7	15.7	9.7
GSFC ENPL (Fast Ethernet) → ERSDAC	89.3	88.4	31.2

Requirements:

Source → Dest	FY	Kbps	Rating
GSFC → ERSDAC	'03 - '05	12.5	Excellent

Comments: Dataflow from GDAAC to ERSDAC was switched to APAN in late February, and the performance above is via that route. MRTG and user flow data are no longer available due to this change.

The thrupt from GDAAC is apparently limited by packet loss at the GigE to FastE switch at Tokyo-XP. The GigE GDAAC source does not see any bottlenecks until this switch (The Abilene and APAN backbones are 10 Gbps), and thus exceeds capacity of the switch's FastE output circuit. But the FastE connected GSFC-ENPL node is limited to 100 mbps by its own interface, so does not suffer performance degrading packet loss – its performance is much higher. Note: EDOS is also FastE connected, and gets the higher performance levels.

The requirement has now been revised to include the level 0 flows which used to be sent by tapes. The thrupt is still more than 3 x this increased requirement, so the rating remains "Excellent".

Other Testing:

Source → Dest	Medians of daily tests (mbps)		
	Best	Median	Worst
ERSDAC → JPL-ASTER IST	87.9	75.9	19.2
ERSDAC → EDC	87.6	86.3	22.9

Requirements:

Source → Dest	Date	mbps	Rating
ERSDAC → EDC	FY '05	26.8	Excellent

Comments:

ERSDAC → EDC: The results from this test (in support of the ERSDAC to EDC ASTER flow, replacing tapes) were stable this month. Thrupt improved to these present values in April (median was 5.6 mbps in March), after an optical jumper was replaced in the Abilene to NGIX-E connection. The requirement for this flow has now been established (see above); the median thrupt is more than 3 x this requirement, so the rating is "Excellent"

ERSDAC → JPL-ASTER-IST: This test was initiated in March, via APAN replacing the EBnet circuit. The results are much higher than previously via the 1 mbps ATM circuit, and should be considered "Excellent" (although no requirement is specified at this time)

8) SIPS Sites:

Web Pages <http://ensight.eos.nasa.gov/Missions/terra/NCAR.shtml>
<http://ensight.eos.nasa.gov/Missions/aqua/RSS.shtml>
http://ensight.eos.nasa.gov/Missions/aura/KNMI_OMIPDR.shtml

Test Results:

Source → Dest	Medians of daily tests (mbps)			Requirement	Rating
	Best	Median	Worst		
LaRC → NCAR	18.4	16.0	11.1	5.4	Good
GDAAC → NCAR	93.1	93.0	92.9	5.1	Excellent
JPL → RSS	2.8	2.8	2.3	2.4	Adequate
GSFC → KNMI	23.7	23.6	22.1	3.3	Excellent

Comments: These sites were previously reported in the QA/SCF report. But have been moved to this report since as SIPS, they are part of the EOS data production process. Note that they are not connected by EMSnet.

NCAR: NCAR (Boulder, CO) is a SIPS for MOPITT (Terra, from LaRC), and has MOPITT and HIRDLS QA (Aura, from GSFC) requirements. Thruput from LaRC (via NISN to MAX to Abilene) is just below 3 x the requirement, so the rating is "Good". From GSFC median thruput is extremely steady at over 3 x the requirement, so that rating is "Excellent".

RSS: RSS (Santa Rosa, CA) is a SIPS for AMSR-E, receiving data from JPL, and sending its results to NSSTC (Huntsville, AL). The NISN dedicated circuit from JPL to RSS was upgraded in late August from 2 T1s (3 mbps) to 4 T1s (6 mbps) to accommodate the larger RSS to GHCC flow. The improvement from this upgrade will be reflected in next month's results. But this month, the thruput was a bit above the requirement, thus rating "Adequate".

Note that with the present configuration, the RSS to NSSTC performance cannot be tested.

KNMI: KNMI (DeBilt, Netherlands) is a SIPS and QA site for OMI (Aura). The route from GSFC is via MAX to Abilene, peering in NY with Surfnets 10Gbps circuit to Amsterdam. Thruput to a test node at KNMI is limited only by a Fast Ethernet connection at KNMI, and get a very steady 92 mbps! The results above are to the OMI PDR server, protected by a firewall, and are quite a bit lower. Thruput is still well above 3 x the requirement, rating "Excellent".